

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.22P.A**WELDING WITNESS REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WWR-000301**Date Inspected:** 04-Jul-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

**Witness:** **Procedure Qualification Record**  
**Welding** **NDT**

**Welder Qualification****Fracture Critical**

**Mechanical Testing, describe:** Reduced Section Specimens,  
Standard Round All Weld  
Metal Tension Specimens,  
Groove Weld Macroetch  
Specimens, Charpy Vee Notch  
Specimens and Side Bend  
Specimens

**Index Lot #:** B72-050-07**Bridge No:** 34-0006**Welder:** Jiang Xiao Hu**Joint Description:** B-U2a**Base Metal:** A709-HPS485W**Thickness:** 90 millimeters**Electrode Spec/Class:** AWS A5.5/E9018M-H4R**Backing Material:** A709-HPS485W**Average Amps:****Average Volts:****Travel Speed:****Preheat:****Witness Lot #:** B26-027-07**Component:** Bid: 52,55 Tower & Girder**ID #:** N/A**N/A WPS ID #:** PWPS-B-T-3211 **N/A****N/A PQR ID #:** HP2007143-1 **N/A****N/A Process:** SMAW **N/A****N/A Positions:** Flat (1G) **N/A****N/A CWI:** Wei Huang **N/A****N/A AWS Code:** AWS D1.5 2002 **N/A****N/A Applicable Sec:** Paragraph 5.13 **N/A****N/A Heat Input:** **N/A****Summary of Items Observed:**

The Caltrans QA Inspector is present at the ZPMC testing center as requested by ZPMC for the purpose of observing scheduled mechanical testing of specimens for PQRs identified as HP2007143-1 & HP2007370. ABF representative Mr. Jeff Evans and Mr. Huang Wei are also present to witness the mechanical testing for these two PQR tests. The Caltrans QA Inspector observed that ZPMC has prepared reduced section specimens, standard all weld metal tension specimens, side bend specimens, charpy vee notch specimens and also macroetch specimens.

Mechanical Testing of ZPMC PQR HP2007143-1 90mm Thick A709 Grade 485 Steel Plate

Six (6) Reduced Section Tension Specimens

Specimen number BBW7143-1-1 was tested and recorded to have an ultimate tensile strength of 653 MPa.

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Specimen number BBW7143-1-2 was tested and recorded to have an ultimate tensile strength of 624 MPa.  
Specimen number BBW7143-1-16 was tested and recorded to have an ultimate tensile strength of 647 MPa  
Specimen number BBW7143-1-22 was tested and recorded to have an ultimate tensile strength of 651 MPa  
Specimen number BBW7143-1-23 was tested and recorded to have an ultimate tensile strength of 644 MPa  
Specimen number BBW7143-1-24 was tested and recorded to have an ultimate tensile strength of 649 MPa.

### One (1) Round All Weld Metal Tension Specimen

BBW7143-1-3 was tested and recorded to have an ultimate tensile strength of 643MPa and yield strength of 563MPa. The elongation was measured at 30.0%.

### Three (3) Groove Weld Macroetch Specimens

Specimen numbers BBW7143-13, BBW7143-1-14 and BBW7143-1-15 have been observed and recorded as having no defects and thorough fusion to the steel backing bar and between adjacent layers of weld metal and base metal.

### Five Charpy Vee Notch Test Specimens

Specimen numbers BBW7143-1-4, BBW7143-1-5, BBW7143-1-6, BBW7143-1-7 and BBW7143-1-8 have been

tested at -30 degrees Celsius and were observed and recorded as having impact energy values of 71 Joules, 114 Joules, 98 Joules, 95 Joules and 116 Joules.

### Five Charpy Vee Notch Test Specimens-Heat Affected Zone (HAZ)

Specimen numbers BBW7143-1-17, BBW7143-1-18, BBW7143-1-19, BBW7143-1-20 and BBW7143-1-21 have been tested at -18 degrees Celsius and were observed and recorded as having impact energy values of 95 Joules, greater than 150 Joules, greater than 150 Joules, greater than 150 Joules and greater than 150 Joules.

### Four (4) Side Bend Test Specimens

Specimen numbers BBW7143-1-9, BBW7143-1-10, BBW7143-1-11 and BBW7143-1-12 have been observed and recorded as having no convex surface defects.

The tests results identified above have been observed and recorded as being compliant with the test requirements as listed within AWS D1.5 (2002) table 4.1 for A709 Grade 485W material with a E9018M MR electrode and also the requirements listed within the Special Provisions. The Caltrans QA Inspector has identified that the number of charpy vee notch specimens and the round all weld metal tension specimens tested does not comply with the number of specimens required by the AASHTO Standard Specification for Highway Bridges.

This 6032 report is supported by a Caltrans 6031 report for this date.

### Summary of Conversations:

No conversations relative to the contents of this report.

<b>Observed welding,testing or results:</b>	is in general conformance with the contract requirements.
	is not in conformance with the contract requirements.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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**Inspected By:** Cuellar,Robert

Quality Assurance Inspector

**Reviewed By:** McClary,David

QA Reviewer